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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,617	01/27/2004	Thomas L. Toth	GEMS8081.197	1346

7590 06/01/2005

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EXAMINER

KEANEY, ELIZABETH MARIE

ART UNIT PAPER NUMBER

2882

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/765,617	TOTH ET AL	
	Examiner	Art Unit	
	Elizabeth Keaney	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/16/04; 2/17/04</u> | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1,2,4,11,14,17 and 19

Claims are rejected under 35 U.S.C. 103(a) as being unpatentable over Murthy et al. (US Patent 6,055,295; hereinafter Murthy) in view of Popescu (US Patent 6,501,828).

Re claims 1,11,17 and 19: Murthy discloses, in figure 1 and throughout the disclosure, a method of imaging comprising the steps of:

- positioning the subject (22) in an imaging device;
- performing at least one scout scan (column 1, line 66);
- marking a user-defined region-of-interest (ROI) (column 2; lines 1-2); and
- automatically adjusting a collimator based on the user-defined ROI (column 2, lines 2-3).

However, Murthy fails to teach or fairly suggest automatically adjusting an attenuation characteristic of an attenuation filter based on the user-defined ROI.

Popescu discloses a method of imaging wherein an attenuation filter has an attenuation characteristic that is automatically adjusted based on a user-defined ROI (column 6, lines 32-37).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an attenuation filter having an attenuation characteristic that is automatically adjusted based on a user-defined ROI within the system disclosed by Murthy because it allows the image produced by the system to have uniform contrast, no matter what region of the body is being imaged.

The Examiner notes that the structure included in claim 11 merely performs the method steps of claim 1 and is therefore obvious for the same reasons.

Re claims 2 and 14: Murthy discloses, in figure 7 and throughout the disclosure, the step of displaying a user interface through which the user defined ROI is marked.

Re claim 4: Murthy discloses, in figure 7 and throughout the disclosure, the user interface includes a graphical representation of data received from the at least one scout scan.

Claims 3,12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murthy and Popescu.

Murthy and Popescu teach all the limitations as shown above, including the use of a graphical user interface.

One of ordinary skill in the art would recognize that the use of a cursor within a graphical user interface system is a preferred method of interface between the operator and the computer system.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a cursor to mark the user-defined ROI of Murthy and Popescu because it allows for a more accurate selection of the ROI due to the direct interface between the operator and the scout scan image.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murthy and Popescu as applied to claim 1 above, and further in view of Moore (US Patent 4,349,917).

Murthy and Popescu teach all the limitations as shown above, including an anterior-posterior scout scan.

However they fail to teach or fairly suggest doing both an anterior-posterior scout scan and a lateral scout scan.

Moore discloses the use of both a lateral scout scan and an anterior-posterior scout scan (column 4, line 21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include both a lateral and an anterior-posterior scout scan to the system disclosed by Murthy and Popescu because it produces a more accurate scout image to include the depth of the object being imaged. Therefore, the appropriate amount of radiation can be administered to desired location of the object.

Claims 6-8,13,15,21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murthy and Popescu as applied to claim 1 above, and further in view of Watanabe (US Patent 6,325,537).

Re claim 6: Murthy and Popescu teach all the limitations as shown above.

However, they fail to teach or fairly suggest determining a center of the user-defined ROI.

Watanabe discloses determining a center of a user-defined ROI (column 9, lines 15-16).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the step of determining a center of a user-defined ROI in the system disclosed by Murthy and Popescu because it produces an image specific to the desired ROI and prevents any extraneous radiation exposure to the portions of the object not being imaged.

Re claims 7,13,21 and 22: Watanabe discloses a step of determining an offset from isocenter to the center of the ROI and repositioning the subject to align the center of the ROI with isocenter (column 9, lines 19-20).

Re claims 8 and 15: Watanabe discloses the step of automatically reposition the subject to optimize image quality of the user-defined ROI (column 10, lines 37-38).

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Claims 9, 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murthy and Popescu as applied to claim 1 above, and further in view of Kalvin (US Patent 5,878,102).

Re claims 9 and 20: Murthy and Popescu teach all the limitations as shown above.

However, they fail to teach or fairly suggest adjusting the attenuation characteristic of the attenuation filter to follow a sinogram of the user-defined ROI.

Kalvin discloses converting a scout scan image to a sinogram (column 3, lines 25-27).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to convert the scout images into sinogram images in order to automatically adjust the attenuation filter based on those images because it reduces the amount of pure data that is needed to produce an image, thereby reducing the processing time while increasing the image contrast.

Re claim 10: Kalvin discloses defining the ROI in three-dimensions (column 4, lines 11-12).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murthy and Popescu as applied to claim 11 above, and further in view of Hampel et al (US Patent 6,173,039; hereinafter Hampel).

Murthy and Popescu teach all the limitations as shown above, including an attenuation filter.

However, they fail to teach or fairly suggest the attenuation filter including a bowtie filter having multiple filtering elements.

Hampel discloses, in figures 7 and 10, a bowtie attenuation filter (86) having multiple filtering elements (92,94).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute a bowtie filter for the attenuation filter of Murthy and Popescu because it prevents excessive scattering at the edges of the image thereby producing a uniform image.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US Patent 6,633,627 discloses using different filters for each region of the body during imaging.
- US Patent 5,822,393 discloses dynamically modifying the attenuation by changing the voltage on the x-ray source.
- US Patent 6,827,489 discloses low dose exposure aided positioning for digital radiography.
- US Patents 5,625,665, 5,369,678, 6,307,918, and 6,836,535 disclose the current state of the art.




Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Keaney whose telephone number is (571)272-2489. The examiner can normally be reached on Monday-Thursday 5:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571)272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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EDWARD J. GLICK  
SUPERVISORY PATENT EXAMINER